Water Reclamation using Spray Drying, Phase II

Completed Technology Project (2008 - 2011)

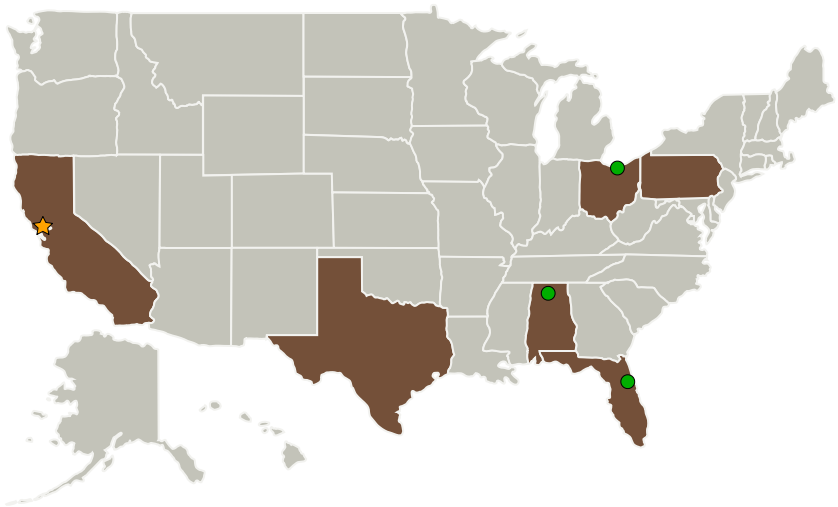
Project Introduction

This purpose of this project is to develop a spray drying prototype to for the recovery and recycle of water from concentrated waste water recovery system brine. Spray drying is a one step, continuous process where a solution, slurry, sludge or paste is transformed into a dry solid and clean water.

Anticipated Benefits

Potential applications are brine dewatering, water recovery in life support systems for: the international space station, the Lunar surface, Mars transit and Mars surface missions. Additionally, spray drying can be used for the drying of high-solids-content moist matterSpray drying is well suited for the single step drying of liquid solutions or suspensions to a dry free solid while producing clean recovered water. A system of modest size can also serve as a backup unit or alternative for other water recovery processors. Innovations in control and efficiency will be find applications in the production of pharmaceuticals. The focus on water recovery will draw interest from the chemical manufacturing and advanced materials industries. Spray drying is a promising technique allow for the optimization of precursor production to produce highest quality nanomaterials at the fraction of the current cost thus enabling many nanomaterial applications

Primary U.S. Work Locations and Key Partners



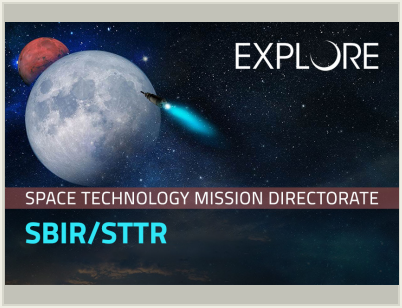


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Table of Contents

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
●Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio
●Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida
●Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama
NanoMaterials Company	Supporting Organization	Industry	Malvern, Pennsylvania

Primary U.S. Work Locations	
Alabama	California
Florida	Ohio
Pennsylvania	Texas

Project Transitions

December 2008: Project Start

December 2011: Closed out

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Project Manager:

Gary C Jahns

Principal Investigator:

Nicholas V Coppa

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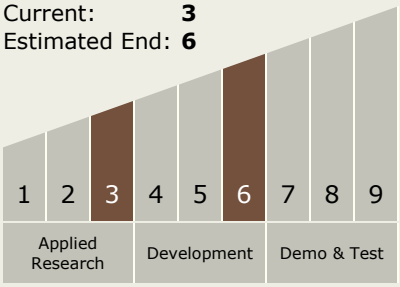
Technology Maturity (TRL)

Start: **3**
Current: **3**
Estimated End: **6**



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
    - TX06.1.2 Water Recovery and Management